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Utilization of Inpatient Rehabilitation Services

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For many injuries and diseases, treatment in the acute care setting is only the first stage in the patient's return to good health and normal functioning, and is followed by inpatient and/or outpatient rehabilitation treatment. This subsequent treatment period may last longer and cost more than the acute care phase, and the insurance coverage of the health care costs incurred may not be as complete as it is for acute care. Rehabilitation care also presents different challenges in evaluating the quality of care and the outcomes of care than are presented by acute care. This analysis briefly presents descriptive data on inpatient rehabilitation treatment in Rhode Island, including characteristics of the treated patients and patterns of their care; there is no equivalent source of data for outpatient rehabilitation care.

Methods. Since October 1, 1989, all acute-care general hospitals in Rhode Island have submitted patient-level data for every hospital inpatient stay, as required by licensure regulations. As of October 1, 1998, the discharge data reporting requirements were extended to the state's two psychiatric specialty hospitals and one inpatient rehabilitation facility. Under these requirements, up to eleven diagnoses made during the hospital admission are included as codes from the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM).¹ For this analysis, cases of rehabilitation treatment were defined as either (1) any patient discharged from the rehabilitation facility or (2) any patient discharged from one of the acute care general hospitals with a principal diagnosis of "Care involving use of rehabilitation procedures" (ICD-9-CM code V57). The analysis included all such discharges during the twelve-month period from October 1, 1999, through September 30, 2000, corresponding to hospital fiscal year 2000.

Information on the medical condition underlying the patient's need for rehabilitation was drawn from the reported diagnosis codes. For patients of the inpatient rehabilitation facility, the information was drawn from the principal diagnosis; for patients of the acute-care general hospitals, the information was drawn from the first-listed additional diagnosis, as the principal "diagnosis" for those patients was the need for rehabilitative care.

For the purpose of computing average lengths of hospital stays, patients not staying overnight were counted as having a stay of one day, per industry practice.

Results. During the twelve-month period investigated, there were 2,260 discharges of patients whose hospital stay was for rehabilitation. Of these, 776 (34.3%) were from the state's only licensed inpatient rehabilitation facility, the Rehabilita-

tion Hospital of Rhode Island (RHRI). The remaining 1,484 were treated in acute care facilities, nearly all of them in four hospitals, Kent County Memorial Hospital, the Memorial Hospital of Rhode Island, Newport Hospital, and St. Joseph Hospital. Rehabilitation patients represented 1.3% of all (non-newborn) patients in the state's acute care hospitals, but between 2.5% and 6.1% of patients in the four hospitals where they were concentrated.

Rehabilitation patients generally experienced longer hospital stays than most acute care patients. For all facilities combined, the average length of stay (ALOS) for rehabilitation patients was 17.1 days. By facility, ALOS for rehabilitation patients ranged from 12.5 days to 19.4 days. The statewide median and mode (most frequently occurring) values for length of stay were both 14 days. The distribution of length of stay for these patients shows that a sizable proportion (14.6%) of patients had stays extending to four weeks and beyond; the longest reported stay was 117 days. (Figure 1)

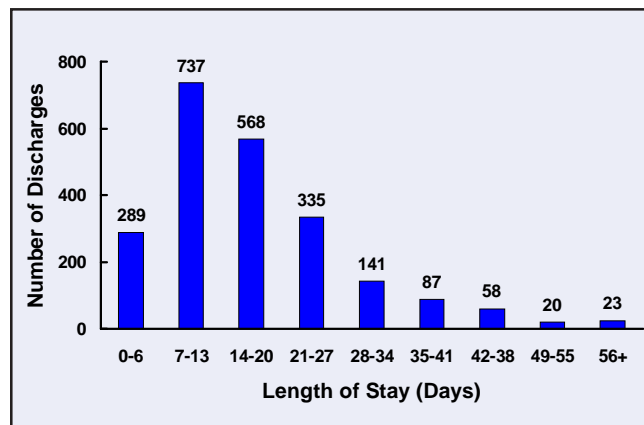


Figure 1. Length of Stay among Inpatient Rehabilitation Patients, Rhode Island, October 1, 1999 - September 30, 2000.

The need for inpatient rehabilitation treatment was driven by a wide range of medical conditions. The largest single group of conditions among these patients was diseases of the circulatory system, (27.8%), followed by injuries and poisonings (19.8%), musculoskeletal conditions (11.8%), respiratory conditions (8.4%), and disease of the nervous system (8.3%). (Table 1)

The age distribution of rehabilitation patients was heavily skewed toward higher ages, with the large majority of patients being ages 55 and older (84.5%). More specifically, 12.2% were ages 55-64, 25.8% were 65-74, and 46.5%, or nearly half, were 75 years old or older. The majority of patients were females, who comprised 57.8% of all patients and 62.3% of those ages 65 and older.

A considerable majority (63.5%) of inpatient rehabilitation patients were covered by Medicare, as would be expected from

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the age distribution of these patients. (Figure 2) The balance were covered primarily by various private health plans (29.2%), with smaller proportions covered by Medicaid (4.8%) and Workers' Compensation (1.0%). Only 1.5% of these patients were uninsured for their care.

Medical Condition	Number of Discharges	Percent of Discharges
Diseases of the circulatory system	627	27.8
Injury and poisoning	447	19.8
Diseases of the musculoskeletal system and connective tissue	266	11.8
Diseases of the respiratory system	190	8.4
Diseases of the nervous system and sense organs	187	8.3
Symptoms, signs, and ill-defined conditions	129	5.7
Diseases of the genitourinary system	81	3.6
Endocrine, nutritional and metabolic diseases, and immunity disorders	79	3.5
Neoplasms	65	2.9
Diseases of the blood and blood-forming organs	26	1.2
Diseases of the digestive system	22	1.0
Diseases of the skin and subcutaneous tissue	22	1.0
Mental disorders	11	0.5
Infectious and parasitic diseases	10	0.4
Congenital anomalies	7	0.3
Complications of pregnancy, childbirth, and the puerperium	1	0.0
Certain conditions originating in the perinatal period	0	0.0
Supplemental classifications	89	3.9

Table 1. Medical Conditions among Inpatient Rehabilitation Patients, Rhode Island, October 1, 1999 – September 30, 2000.

Discussion. With the inclusion of the state's single inpatient rehabilitation facility, the statewide hospital discharge data system now covers all providers of inpatient rehabilitation care in the state. Based on these data, a majority of such care is provided by the acute care hospitals, although the Rehabilitation Hospital of Rhode Island is the largest single provider of care. The average stay for rehabilitation care is over two weeks, but many patients stay for one month and longer. The typical patient is elderly, is covered by Medicare, and is most likely to be recovering from a chronic disease of the circulatory, musculoskeletal, respiratory, or nervous system or from an injury.

Rehabilitation treatment is part of a continuum of care; it

usually follows a period of acute care and may in turn be followed by long-term care, such as in a nursing home or from a home care provider. The capacity to link or otherwise combine information on patients across these settings is useful to estimate the costs of medical care for specific preventable conditions or to evaluate the efficacy of the health care system in ultimately returning patients to good health and functioning. The establishment of an information source for rehabilitation care provided by inpatient facilities in our state is an important step in building this capacity.

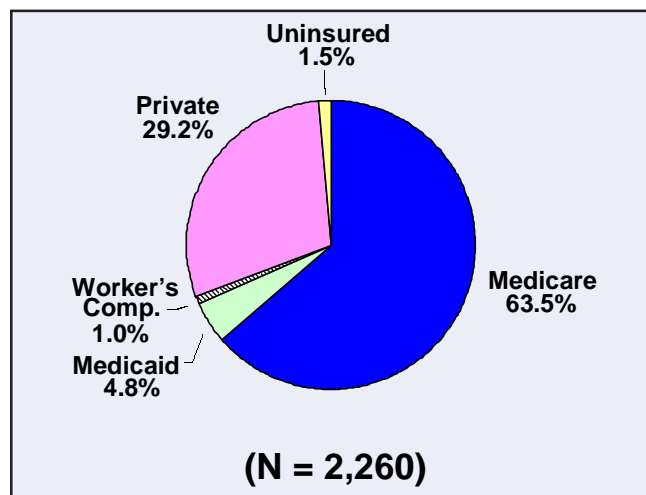


Figure 2. Expected Source of Payment among Inpatient Rehabilitation Patients, Rhode Island, October 1, 1999 - September 30, 2000.

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